

AUSTRALIAN CUMACEA, No. 10⁽¹⁾
THE FAMILY LEUCONIDAE

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Fig. 1-6

Family LEUCONIDAE

The most northerly record of the family in the southern hemisphere seems to be that of *Leucon calluropus* Stebbing (1912, p. 156—off Natal, South Africa, latitude about 29° S., longitude 32° E.). Calman (1907, 31-39) records seven species from the south island of New Zealand (latitude 43°-44° S., longitude 173° E.); this fairly good representation was secured in a small area, evidently by the same collector, H. Suter, in May and August 1897. About ten of the other known species occur in the Subantarctic and Antarctic.

It would seem that Leuconids play but a small part in the Cumacean fauna of Australian coasts, although the southern waters of Tasmania may produce somewhat different results. Notwithstanding the fact that some extensive collections have been made off New South Wales and South Australia, individuals belonging to the family number less than fifty, and represent only three species. These were secured between latitude 35°-36° S., two from the east coast (longitude 150°-152° E) and one from the south (longitude 138° E.). All are herein described as new; two are referred respectively to *Leucon* and *Hemileucon*, but if they are to remain so placed some latitude in the definition of these genera must be allowed.

Genus LEUCON Kröyer

Leucon, Kröyer, 1846, 208; Stebbing, 1913, 63 (syn.); Hansen, 1920, 7.

Kröyer's name has been long quoted for this widely distributed Cumacean genus and the discarding of *Leucon* because it has been used in Besser MS. (Schoenherr, 1834, Gen. Curc., 2, (1), 285, 286) for the Coleoptera would serve no useful purpose.

Leucon ocellaris sp. nov.

Adult male (A). Carapace smooth, excepting for faint, sparse pitting and a feeble median carina on frontal lobe; it is a little longer than the pedigerous somites together and more than one-fourth of total length of animal; it is slightly compressed and with greatest width more than half its length. Pseudorostrum not at all upturned; lobes meeting for a distance equal to about one-seventh of length of carapace, in front subtruncate, serrate and fringed with setae. Ocular lobe not distinctly defined, but there is present a small projection at apex of frontal lobe; eye present, there being a large sooty patch on frontal lobe, surrounding a single, oval, tumid corneal lens. Antennal notch widely open; the antero-lateral margin and front part of infero-lateral margin of carapace serrate.

Pedigerous somites somewhat depressed, the pleural parts of first to fourth rather prominent; second to fourth subequal in length.

Pleon distinctly longer than cephalothorax; first to fifth somites successively increasing in length; telsonic somite short, as long as second somite; as wide as long, and with posterior margin rounded and bisinuate; the produced distal part is one-half the length of the remainder.

First antenna with second and third joints of peduncle subequal in length, together as long as first joint; flagellum almost as long as last peduncular seg-

⁽¹⁾ No. 9, see Rec. S. Aust. Mus., 8, 1945, pp. 145-218, fig. 1-49.

ment, two-jointed, the first segment seemingly composed of two fused joints; accessory flagellum large, single-jointed, as long as first segment of main lash.

Flagellum of second antenna reaching to just beyond end of telsonic somite.

Mandible typical of genus; lacinia stout and bidentate.

Third maxilliped with basis more than half as long again as palp.

Basis of first pereopod barely longer than rest of limb; carpus slightly longer than ischium and merus together; propodus a little shorter than carpus and longer than dactylus.

Second pereopod with basis longer than rest of limb; ischium short but distinct; carpus with three unequal distal spines; dactylus twice as long as propodus, and not quite as long as the longest of its five distal spines.

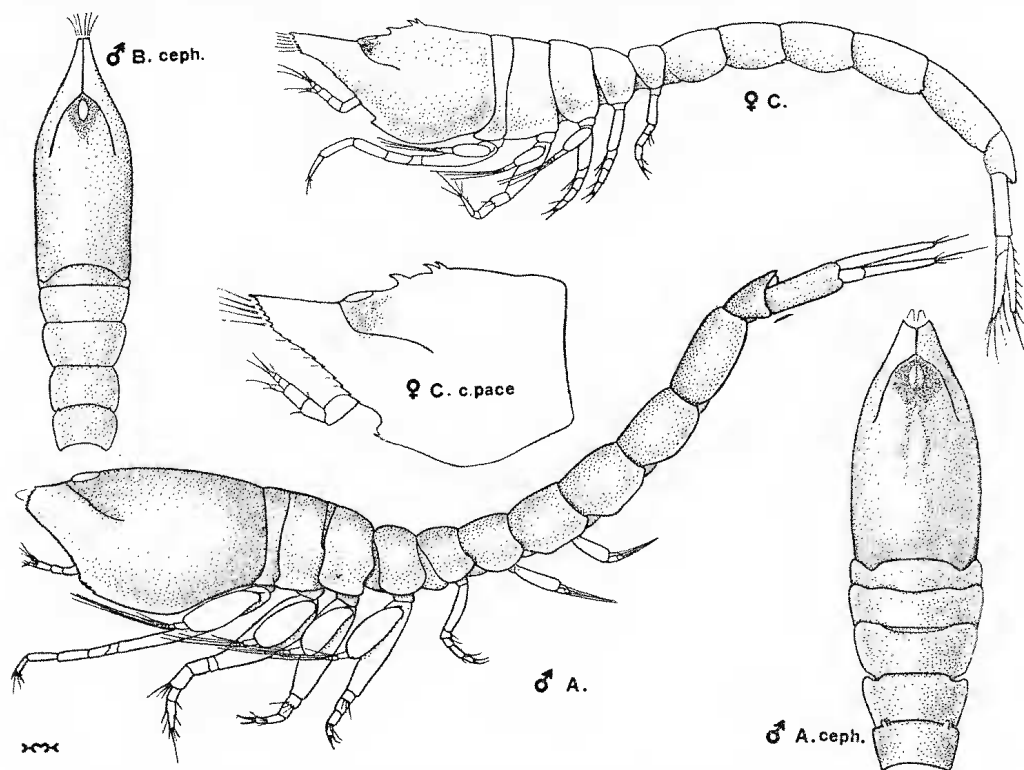


Fig. 1 *Leucon ocularis*. A, Lateral view and (ceph.) cephalothorax of type male, Backstairs Passage. B. ceph., Cephalothorax of male from St. Vincent Gulf. C, Lateral view of allotype female, St. Vincent Gulf (all x 37); C. c, pace, Carapace of allotype female (x 60).

Third and fourth pereopods with basis wide and more than twice as long as rest of limb; ischium subequal in length to merus and with three unequal setae; carpus not much longer than propodus, with three distal setae, the longest reaching level of tip of dactylus.

Fifth pereopod abruptly shorter, only about half length of fourth; basis not expanded, barely longer than rest of limb.

Peduncle of uropod shorter than the subequal rami, and with half-a-dozen plumose setae and a few shorter outstanding stiff setae; exopod with three unequal spines at truncate apex, the longest almost half as long as the ramus, its inner margin with three plumose setae and a spine next to the terminal three; endopod single-jointed, with two stout unequal distal spines (the longer less than

half as long as ramus) and with a row of about a dozen short spines on whole length of inner margin.

Colour white save for the pronounced pigmentation of the frontal lobe; this colour patch bifurcates behind the lobe and extends for some distance along the back. Length 2.8 mm.

Loc.—South Australia: Page Islands, Backstairs Passage, 9 fath. (K. Sheard, submarine light, Apl. 1941). Type, male, in South Australian Museum, Reg. No. C.2493.

Males only were taken at this locality.

Adult male (B). Carapace distinctly longer than pedigerous somites together and with its greatest width much less than half its length; it is little more than one-fourth of total length of animal. Pseudorostrum narrowly truncate in

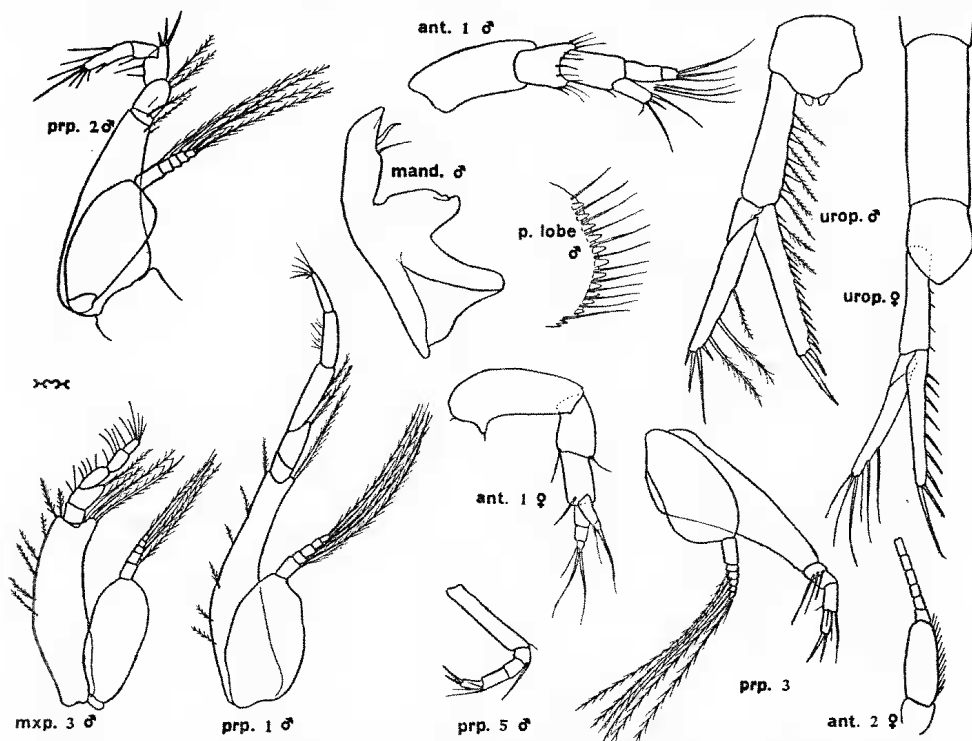


Fig. 2 *Leucon ocularis*, paratype adult male from Backstairs Passage, and allotype female from St. Vincent Gulf; p. lobe, mand. and ant. 1, anterior end of pseudorostral lobe, mandible and first antenna ($\times 135$); ant. 2, and prp, part of second antenna and peraeopods ($\times 60$); urop, uropod with telsonic somite, etc. ($\times 60$).

front, the lobes meeting for a distance equal to nearly one-fourth of length of carapace. Frontal lobe and eye as described (fig. 1, B). Pleon barely longer than cephalothorax, slender as in the female shown in fig. 1, C.

Second antenna with flagellum reaching beyond end of pleon for a distance equal to length of telsonic somite.

Length 2.7 mm.

Loc.—South Australia: St. Vincent Gulf, off Troubridge Island, near Edithburgh, $10\frac{1}{2}$ fath. (H. M. Hale and K. Sheard, A. Trawl, Apl. 1945).

This male, taken in more sheltered waters than the examples from Backstairs Passage, agrees in essential features with the latter but differs strikingly in the much more slender form and the longer and narrower pseudorostrum.

Subadult female (C). Carapace more than one-fourth of total length of animal, decidedly compressed, and one and three-fourths times as long as deep; mid-line of dorsum with three teeth, one placed posterior to eye at middle of length, the other two very close together a little behind this. Pseudo-rostrum horizontal, the lobes meeting for a distance equal to more than one-fourth of length of carapace; seen from the side the lobes are very obliquely subtruncate and finely serrate in front; the oblique antero-lateral margin leading to the small but distinct antennal notch is feebly serrate; antero-lateral angle rounded, with a small tooth inferiorly, and margin posterior to this very feebly serrate. A large lens and dark colour patch on frontal lobe as in male, the pigment mass embracing several pale oval areas.

Pleon barely longer than cephalothorax; fifth somite about twice as long as telsonic somite, which is longer than wide and is well produced posteriorly above bases of uropods.

Main flagellum of first antenna apparently three-jointed, and accessory lash two-jointed, the second segment minute.

Basis of first peraeopod shorter than in male, not as long as remaining joints together.

Second peraeopod with basis equal in length to rest of limb; the ischium, although distinct in the male, cannot be made out here.

Third and fourth peraeopods not much longer than fifth.

Peduncle of uropod nearly four-fifths as long as the subequal rami and with a few short and feeble inner setae, but no plumose hairs; endopod single-jointed, with seven spines on inner margin and two terminal ones, the longer of which is fully half as long as the ramus.

Length 2.65 mm.

Loc.—South Australia: St. Vincent Gulf, off Troubridge Island, near Edithburgh, $10\frac{1}{2}$ fath.; and midway between Edithburgh and Glenelg, 35 metres (H. M. Hale and K. Sheard, A. Trawl, Apl. 1945). Allotype female in South Australian Museum, Reg. No. C. 2757.

In some Cumacea with well-developed eye the corneal lenses are not confined to the portion of the frontal area separated off as an ocular lobe (see for instance *Glyphocuma bakeri* Hale, 1944, fig. 31); further, an ocular lobe is not necessarily sharply marked off in species with eyes (see *Gephyrocuma repanda* Hale, 1944, fig. 16). Some of the species of *Leucon* are regarded as having a small and obscure eye-lobe, like the tiny anterior projection of the frontal lobe of *ocularis*. In Zimmer's *kerquelensis* (1908, 178, pl. xli, fig. 71-72) this is larger and quite distinct.

Apart from the presence of a pigmented eye, *ocularis* differs from all other species referred to the genus in having the endopod of the uropod not divided into two segments.

Genus *HEMILEUCON* Calman

Hemileucon Calman, 1907, 32 and 37; Stebbing, 1913, 152.

The only species previously referred to the genus are the two from New Zealand described by Calman—*uniplicatus* and *comes*. The form recorded below differs from both of these in having the endopod of the uropod single-jointed and in lacking lateral ridges on the carapace; it would appear that latitude in these characters will have to be allowed in *Leuconid* genera, as it is in *Bodotria* and *Gynodiastylis*. The new species agrees with *comes* in having the ischium of the second peraeopod distinct.

The genus stands on male characters, the complete absence of pleopods and a second antenna with short flagellum.

Hemileucon levis sp. nov.

Ovigerous female. Integument shining, sparsely and faintly pitted, particularly on carapace.

Carapace two-thirds as long again as deep, considerably compressed, and one-fourth of total length of animal; a serrated crest runs from apex of frontal lobe to just beyond middle of length of carapace; this is cut into nine teeth, the anterior five separated from the others by a wider interspace; antennal notch rather

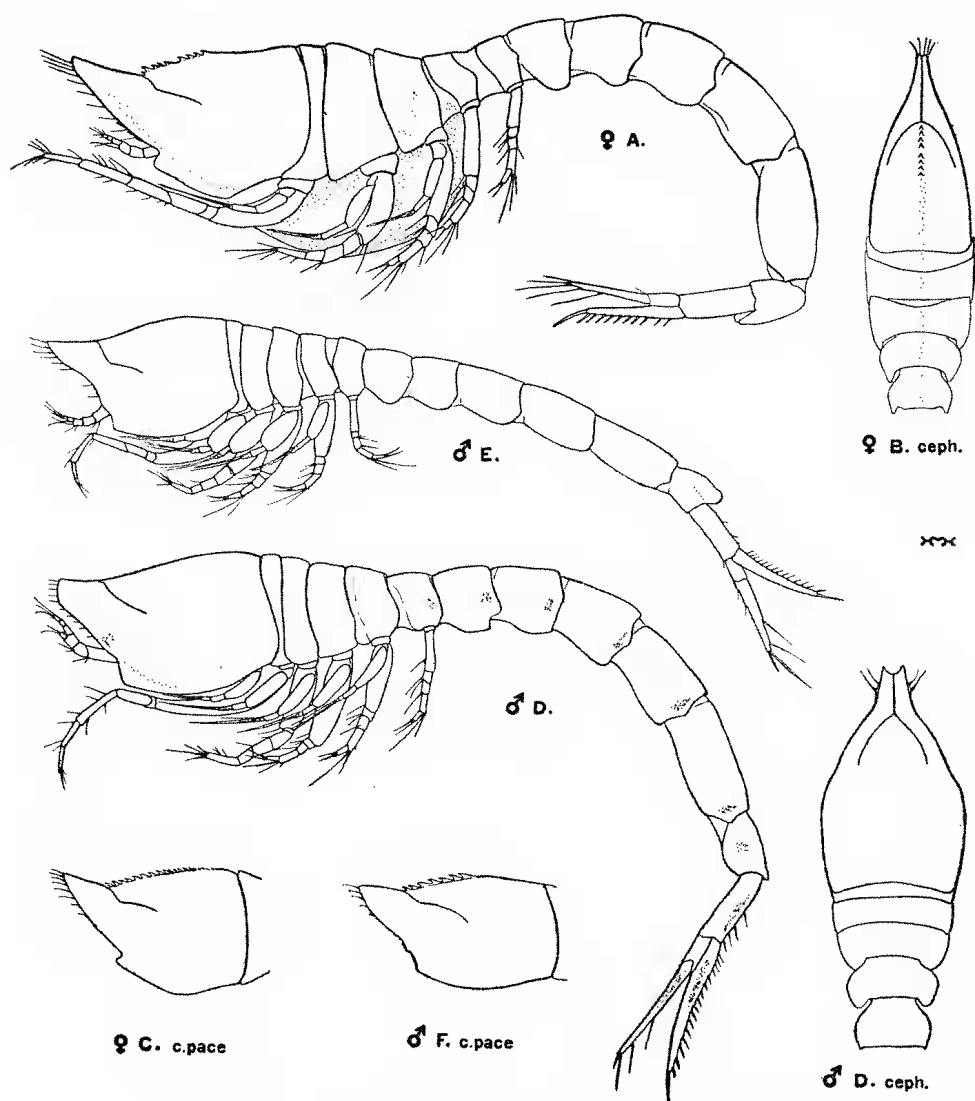


Fig. 3 *Hemileucon levis*. A, lateral view of type female. B, Cephalothorax of ovigerous female. C, Carapace of female showing variation in armature. D, Type male, lateral view and (ceph.) cephalothorax from above. E, lateral view of small adult male. F, Carapace of adult male with serrated crest (all x 32).

deep and angle narrowly rounded; inferior margin immediately posterior to antero-lateral angle feebly serrate. Pseudorostrum long, the lobes meeting for a distance equal to nearly one-third of total length of carapace; its anterior margin is subtruncate, slightly oblique and feebly serrate, while the very oblique lower margin is irregularly toothed.

None of pedigerous somites greatly expanded on sides, but pleural parts of second longer than in any of the others; together they are a little shorter than carapace.

Pleon a little longer than cephalothorax; fifth somite much longer than any of the others and nearly twice the length of telsonic somite, which is as broad as long, rounded posteriorly.

First segment of peduncle of first antenna distinctly longer than second and third together, and second a little longer than third; flagellum three-jointed, its first segment longest and about equal in length to the single-jointed accessory lash.

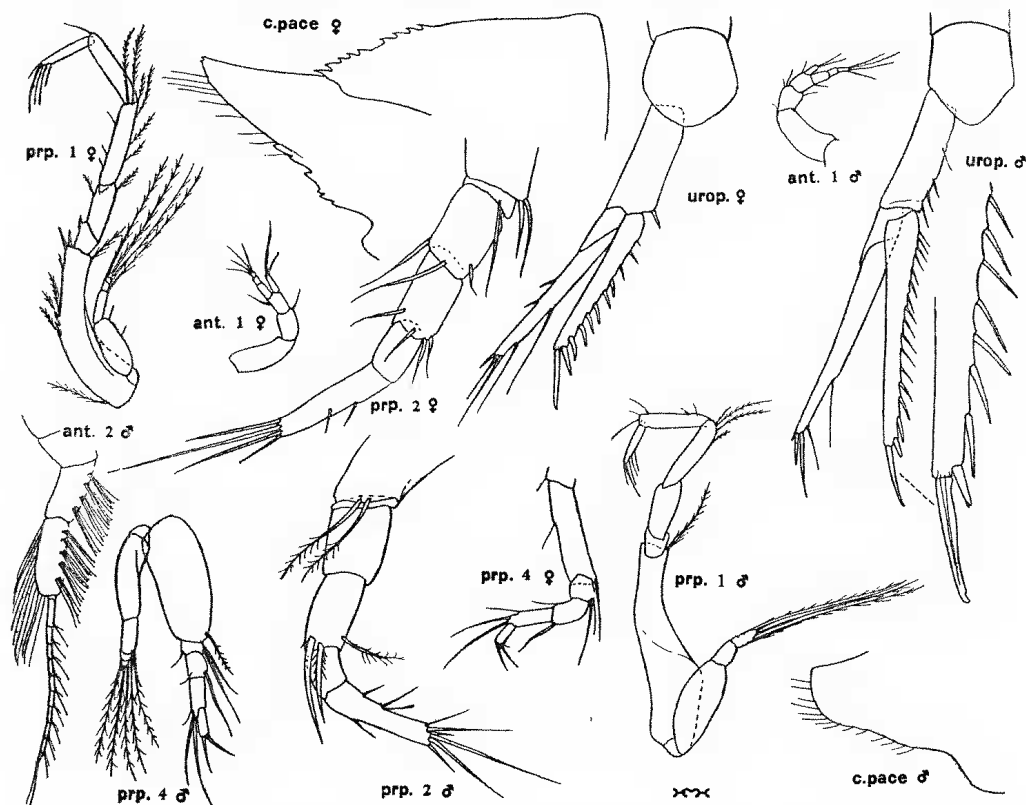


Fig. 4 *Hemileucon levis*, paratypes female and male; c, pace, front of carapace from the side; ant. 1-2, first and second antennae; prp. 1 and 4, first and fourth pereopods ($\times 60$; distal part of endopod of uropod, $\times 135$); prp. 2, second pereopod, basis not shown ($\times 135$).

Basis of first pereopod not much more than half as long as remaining joints together, with plumose seta at outer distal angle, and with spines at inner distal angle; ischium with an inner tooth; carpus a little longer than propodus, which is longer than merus; dactylus about two-thirds as long as propodus, with one of its terminal setae stout.

Second pereopod with ischium short but distinct; merus subequal in length to carpus; dactylus almost as long as carpus and propodus together, and with longest of terminal setae fully as long as propodus and dactylus together.

Third and fourth pereopods with basis not or barely longer than rest of limb.

Exopod of uropod one-fifth as long again as endopod and two-thirds as long again as peduncle, which has a single spine near distal end of inner margin;

endopod with no trace of division into two joints and with two or three stout setae on proximal part of inner margin, followed by seven rather stout spines, the last a little stouter than the others and subterminal; the robust terminal spine is more than one-third as long as the ramus; exopod with two long setae on inner edge and three slender and very unequal spines at apex.

The animal is translucent in alcohol, without colour markings. Length 3.5 mm.

Adult male. Carapace rather more than half as long again as deep; seen from above it is somewhat inflated (as wide as deep) in posterior half and the sides are sinuate, tapering rapidly to the front in anterior half; it is one-fourth of total length of animal and has no dorsal serrations (see below). Antennal notch widely open and angle a little obtuse. Pseudorostral lobes subtruncate in front, meeting for a distance equal to almost one-fifth of length of carapace.

Pedigerous somites successively increasing in length, together distinctly shorter than carapace.

Pleon distinctly longer than cephalothorax; telsonic somite longer than wide, quite well produced posteriorly above bases of uropods.

First antenna much as in female. Last joint of peduncle of second antenna not much longer than the preceding; flagellum not or scarcely reaching beyond hinder end of carapace, composed of eleven joints, the first very short, the second the longest.

Basis of first peraeopod relatively long, although shorter than rest of limb, with a plumose seta at external distal angle; remaining joints of same proportions as in female.

Second peraeopod with short, collar-like ischium; carpus with two particularly stout distal spines and a plumose seta.

Third and fourth peraeopods with basis distinctly longer than rest of limb; no outstanding features.

Rami of uropod subequal in length, nearly twice as long as peduncle, which has four slender spines on inner edge; endopod single-jointed, its inner edge with four stout proximal setae, followed by a series of eleven spines, scarcely differing in length, but the last two slightly stouter than the others; there are two more robust spines at apex, the truly terminal one three times as long as the other and one-fourth as long as the ramus.

Colour translucent, with mottling of red pigment at antennal notch and on last pedigerous and pleon somites. Peduncle and rami of uropod with linear red mottlings.

Length 3.25 mm.

Loc.—New South Wales: 5 miles off Port Hacking, 100 metres (July 1943); 4 miles off Eden, 70 metres (Oct. 1943); 4 miles off Port Hacking, 80 metres (type female, May 1944); Ulladulla, 75 metres (type male, June 1944)—all K. Sheard, A. Trawl, on mud or silt; Ulladulla, Brush Island, 45 fath., fine silt on flathead grounds (D. Rochford, A. Trawl, Jan. 1945). Types in South Australian Museum, Reg. No. C. 2549 and 2563.

A male taken with the type male had the red pigmentation as described. The size is variable; one ovigerous female (from 100 metres) is only 2.85 mm. in length (fig. 3, B), while a male with exopods fully developed is 2.7 mm. This last example has the dorsum of the carapace smooth and rounded as in the type, although the pseudorostrum is less truncate anteriorly when viewed from the side (fig. 3, E). A slightly larger male (2.85 mm.), also with fully developed exopods, has the dorsum of the carapace serrate as in the type female, but with the

teeth in a continuous series (fig. 3, F). The carapace armature of the female is variable; usually there is a break in the series (four or five plus four; or three plus four or five), but in one example the dorsum is serrate for practically the whole length (fig. 3, C), although the posterior teeth are insignificant.

Genus EUDORELLA Norman

Eudorella Stebbing, 1913, 74 (syn.); Hansen, 1920, 21.

Only five of the twenty-two species previously described have been noted for the southern hemisphere. Calman (1907, 33) records *truncatula* (Spence Bate) from the South Island of New Zealand, and Zimmer has named four Antarctic and Subantarctic species, *gracilior*, *fallax*, *splendida* and *sordida* (Stebbing, 1913, 77, 80 and 81, ref. and syn.).

Eudorella rochfordi sp. nov.

Ovigerous female. Integument smooth except for faint pitting, which is most distinct on carapace; thin and translucent.

Carapace rather less than one-fifth of total length of animal and as long as the first four pedigerous somites combined; it is compressed (one-third as deep again as wide) and not very much longer than deep. Antero-lateral angle not

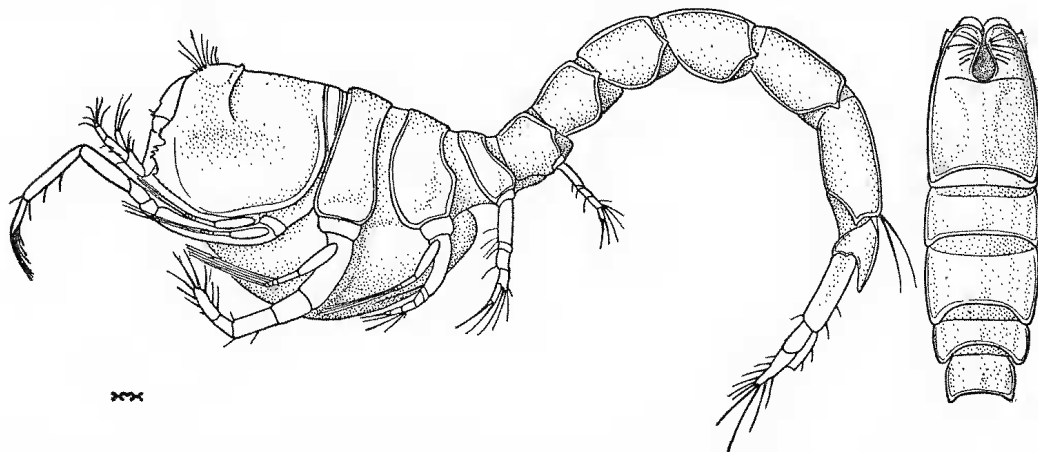


Fig. 5 *Eudorella rochfordi*, type female; lateral view and cephalothorax from above (x 35).

prominent but armed with a tiny tooth, behind which the inferior margin is shallowly serrate for nearly half its length. Anterior margin immediately above antero-lateral tooth slightly emarginate, then with a prominence cut into three (left side) or four (right) teeth, the lower two of which are downbent; a little distance above this again is a second prominence cut into four or five teeth, mostly directed upwards; between the two prominences the sinus is distinct. Upper margins of pseudorostral lobes slightly vaulted as seen from the side, each with a group of prominent setae, the longest equal in length to about one-third depth of carapace.

First pedigerous somite partially covered by second on sides; third somite a little longer on sides than any of the others excepting the fifth.

Pleon longer than cephalothorax; fifth somite three-fourths as long again as telsonic somite and with a pair of long dorsal setae, placed close together at posterior end, and reaching fully to end of telsonic somite; the last-named is well produced above bases of uropods.

First antenna with second segment of peduncle not at all dilated and distinctly more than half as long again as third, which is about as long as the wide first joint; main flagellum three-jointed, the first segment as long as last peduncular joint, and two and one-third times as long as second; third very small; accessory flagellum single-jointed, not much shorter than first segment of the other lash.

Third maxilliped much as in female of *emarginata* but with basis not longer than remaining joints together; carpus one-fourth as long again as propodus, which is equal in length to ischium and merus together, and is fully one-third as long again as dactylus.

First peraeopod slender, the merus reaching to level of anterior margin of carapace; basis two-thirds as long as rest of limb; propodus half as long again as carpus and twice as long as dactylus.

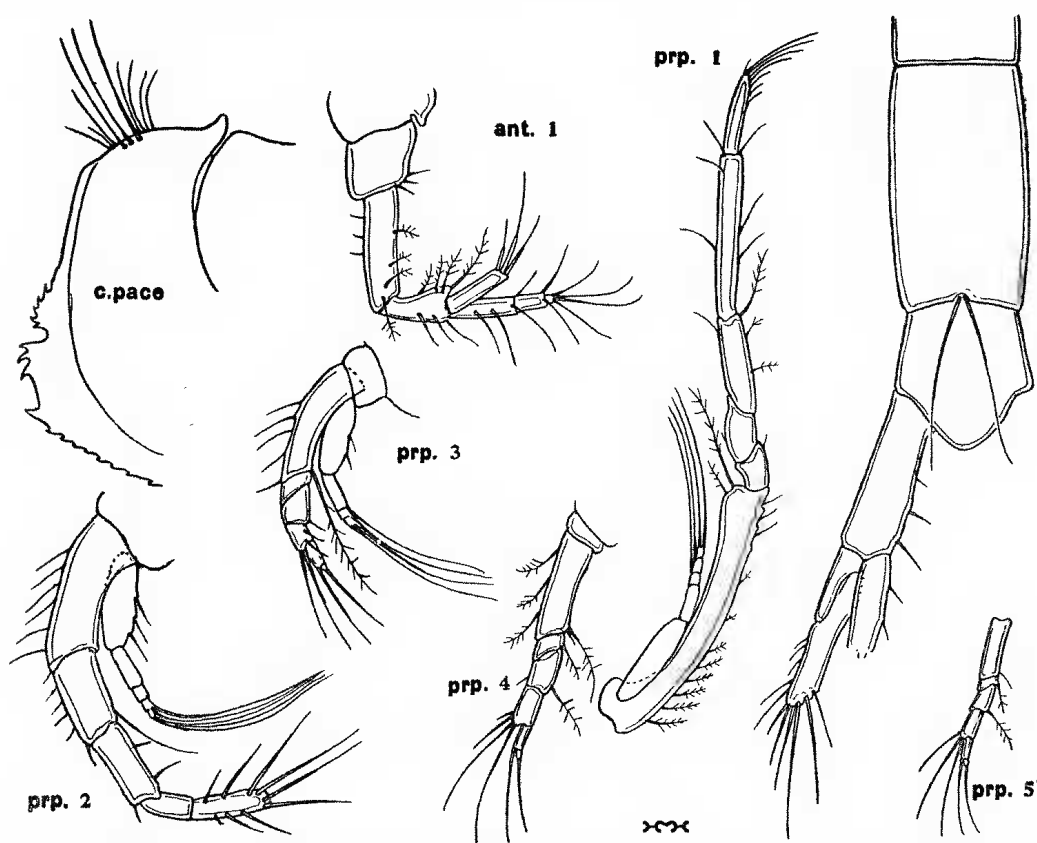


Fig. 6 *Eudorella rochfordi*, type female; c, pace, anterior edge of carapace from the side (x87); ant. 1, first antenna (x87); prp, first to fifth peraeopods (x74); urop, uropod with fifth pleon and telsonic somites (x74).

Second peraeopod with basis only as long as combined lengths of merus and carpus, which are equal in length; dactylus not quite twice as long as propodus, almost as long as carpus, and with the longest terminal setae nearly as long as propodus plus dactylus.

Basis longer than rest of limb in third peraeopod, equal to this in fourth and shorter than remaining joints together in fifth; third and fourth pairs subequal in length (each a little more than half as long as second leg) and fifth only two-thirds as long as fourth; dactylar seta and longest propodal seta in all at least equal to combined lengths of the three distal joints of the limbs.

Peduncle of uropod little longer than telsonic somite and equal in length to exopod, its inner margin with three short setae; endopod broken.

Length 3.33 mm.

Loc.—New South Wales: Ulladulla, Brush Island, 45 fath., in fine silt on flathead grounds (D. Rochford, A. Trawl, Jan. 1945). Type in South Australian Museum, Reg. No. C. 2761.

A single example was found amongst a mass of Cumacea collected by the Hydrologist of the Fisheries Division, C. S. and I. R., Mr. D. Rochford, after whom the form is named.

This species belongs to the puzzling *truncatula* group (Hansen, 1920, 21). While the anterior margin of the carapace is very like that of *truncatula* (Spence Bate) the general shape of the carapace is more as in *hirsuta* Sars (Sars, 1900, pl. xxix-xxx). It differs from *truncatula* in having the vaulted upper profile of the pseudorostral lobes furnished with longer and more prominent setae, while the pair of dorsal setae at the posterior end of the fifth pleon somite, instead of being insignificant, project over the telsonic somite as in *emarginata* (Kröyer) —Sars, 1900, pl. xxvii. Further, the second joint of the peduncle of the first antenna is relatively longer (little longer than third in female of *truncatula*), the flagella of this appendage are longer and the propodus of the first pereopod is proportionately more elongate (only one-third as long again as carpus in *truncatula*); the endopod of the uropod also may show some difference.

As previously noted, Calman refers a small species of *Eudorella* from New Zealand to the North Atlantic *truncatula*, remarking at the same time on some slight differences.

SUMMARY

The family Leuconidae is poorly represented off Australian shores, and amongst a considerable amount of Cumacean material collected on the southern and eastern coasts only three species have been found—*Leucon ocularis*, *Hemileucon levis* and *Eudorella rochfordi* spp. nov. The two first-named are distinctive in the genera they are referred to, but the last resembles closely the North Atlantic *Eudorella truncatula* (Spence Bate).

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